

=> index bioscience medicine

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=> s ((protein-glutamine adj gamma-glutamyltransferase#) or (microbial adj transglutaminase#) or transglutaminase#)

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 761 FILE WPINDEX  
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 2 FILE NAPRALERT  
 61 FILE NLDB

L1 QUE ((PROTEIN-GLUTAMINE ADJ GAMMA-GLUTAMYLTRANSFERASE#) OR  
 (MICROBIAL ADJ TRANSGLUTAMINASE#) OR TRANSGLUTAMINASE#)

=> d rank

F1 5119 SCISEARCH  
 F2 5005 BIOSIS  
 F3 4833 CAPLUS  
 F4 4125 MEDLINE  
 F5 3593 DGENE  
 F6 3110 EMBASE  
 F7 2597 GENBANK  
 F8 1871 ESBIODASE  
 F9 1848 PASCAL  
 F10 1836 USPATFULL  
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 F12 1418 BIOTECHNO  
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 F17 611 JICST-EPLUS  
 F18 580 FSTA  
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 F20 463 IFIPAT

=> file f1-f4, f6, f8-f14

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FILE 'WPIDS' ENTERED AT 10:56:33 ON 02 FEB 2006  
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=> s L1  
L2 32440 L1

=> s (gene# or sequence# or polynucleotide# or clone# or recombinant)(s)L2  
3 FILES SEARCHED...  
8 FILES SEARCHED...

L3 5444 (GENE# OR SEQUENCE# OR POLYNUCLEOTIDE# OR CLONE# OR RECOMBINANT)  
(S) L2

=> s (streptomyces or streptovorticilli?)(s)L3  
L4 199 (STREPTOMYCES OR STREPTOVERTICILLI?)(S) L3

=> s expressi?(s)L4  
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=> dup rem l5  
PROCESSING COMPLETED FOR L5  
L6 36 DUP REM L5 (41 DUPLICATES REMOVED)

=> d ibib abs L6 1-36

L6 ANSWER 1 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005-959781 CAPLUS

DOCUMENT NUMBER: 143:246868

TITLE: High level \*\*\*expression\*\*\* of  
\*\*\*Streptomyces\*\*\* mobaraensis  
\*\*\*transglutaminase\*\*\* in Bacillus brevis using a  
pro- \*\*\*transglutaminase\*\*\* \*\*\*sequence\*\*\*  
attached to signal \*\*\*sequence\*\*\*

INVENTOR(S): Yamagata, Hideo; Tokishita, Shinichi; Matsui, Hiroshi;  
Udaka, Juzo

PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 35 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005229807	A2	20050902	JP 2001-100828	20010330
PRIORITY APPLN. INFO.:			JP 2001-100828	20010330

AB Biosynthetic prodn. of transglutaminase in Bacillus brevis is disclosed. Transglutaminase coding sequence is attached to a Bacillus brevis cell surface protein derived signal peptide coding sequence, and Bacillus brevis is transformed. A modified pro-transglutaminase having a protease cleavage site inserted between pro and mature protein sequence, and having mutations in its glycosylation site, is expressed and secreted in host yeast, and processed with a protease, to yield a mature transglutaminase. Transglutaminase (TGase) from the actinomycete Streptomyces mobaraensis is a useful enzyme in the food industry, and development of an efficient prodn. system for it would be desirable. Prodn. of Streptovorticillium mobaraense transglutaminase in Bacillus brevis is described. Pro- or mature transglutaminase having Bacillus brevis middle wall protein (MWP) signal peptide and Bacillus polymyxa AJ11034 neutral metalloprotease (npr) cleavage site were expressed.

L6 ANSWER 2 OF 36 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN

ACCESSION NUMBER: 2005-315712 [32] WPIDS

DOC. NO. CPI: C2005-098222

TITLE: Screening for protein secreting recombinant host cells,  
comprises screening for promoter activity of a stress  
inducible promoter, useful for identifying transformants  
secreting proteins having industrial applications.

DERWENT CLASS: B04 D16

INVENTOR(S): HOFF, T

PATENT ASSIGNEE(S): (NOVO) NOVOZYMES AS

COUNTRY COUNT: 108

## PATENT NO    KIND DATE    WEEK    LA   PG

**APPLICATION DETAILS:**

PATENT NO	KIND	APPLICATION	DATE
WO 2005038024	A1	WO 2004-DK699	20041013

Dwg.0/0

**AB** This study describes a novel strategy to improve the growth performance of *Lactococcus lactis* by heterologous production of food-grade transglutaminase. The *mtg* gene from *Streptovorticillium mobararensis* that encodes the mature protein was cloned into a nisin-inducible expression vector and transformed into *L. lactis* subsp. *cremoris* NZ9000. The leaky expression of the *mtg* gene from the *nisA* promoter resulted in ammonia formation and carbon flux redistribution at the pyruvate branch. As a consequence, medium acidification was lessened and energy utilization was improved. This led to significantly higher biomass production under aerobic

conditions and particularly under non-pH-controlled conditions (up to a 12-fold increase). The results presented here provide a novel way to enhance the growth yield of *L. lactis*, which is an important step for the purposes of producing proteins of commercial interest using *L. lactis* as a host.

L6 ANSWER 4 OF 36 MEDLINE on STN  
 ACCESSION NUMBER: 2005605626 IN-PROCESS  
 DOCUMENT NUMBER: PubMed ID: 16285523  
 TITLE: High \*\*\*expression\*\*\* of microbial  
       \*\*\*transglutaminase\*\*\* \*\*\*gene\*\*\* from  
       \*\*\*Streptovorticillium\*\*\* mobaraense in Escherichia coli.  
 AUTHOR: Xu Bin; Han Zhi-Bo; Yang Ping; Liu Yong-Jun; Li Yan-Han;  
       Han Zhong-Chao  
 CORPORATE SOURCE: Institute of Hematology, Chinese Academy of Medical  
       Sciences, Tianjin 300020, China. xubin\_td@sohu.com  
 SOURCE: Sheng wu gong cheng xue bao = Chinese journal of  
       biotechnology, (2005 Sep) 21 (5) 794-8.  
       Journal code: 9426463. ISSN: 1000-3061.  
 PUB. COUNTRY: China  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: Chinese  
 FILE SEGMENT: NONMEDLINE; IN-PROCESS; NONINDEXED; Priority Journals  
 ENTRY DATE: Entered STN: 20051116  
       Last Updated on STN: 20051216

AB The microbial transglutaminase (MTG) gene was amplified from the genomic DNA of *Streptovorticillium mobaraense* by using PCR and inserted into pET vector to construct the expression plasmid called pET-MTG. The pET-MTG was transfected into *E. coli* (Rosetta DE3) and the MTG protein was found to be highly expressed as inclusion bodies. The inclusion bodies were isolated and subjected to denaturation and re-naturation, followed by strong cation ion-exchange chromatography to purify the expressed MTG. The specific activity of purified MTG was close to that of native MTG. Taken together, this study might provide a base for the industrial production of microbial transglutaminase.

L6 ANSWER 5 OF 36 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN  
 DUPLICATE 2

ACCESSION NUMBER: 2005:463068 BIOSIS  
 DOCUMENT NUMBER: PREV200510258309  
 TITLE: Influence of expression of transglutaminase on the growth  
       of *Lactococcus lactis*.  
 AUTHOR(S): Fu Rui-yan; Chen Jian; Li Yin [Reprint Author]  
 CORPORATE SOURCE: So Yangtze Univ, Sch Biotechnol, Minist Educ, Key Lab Ind  
       Biotechnol, Wuxi 214036, Peoples R China  
       yinli@sytu.edu.cn  
 SOURCE: Weishengwu Xuebao, (AUG 2005) Vol. 45, No. 4, pp. 510-515.  
       CODEN: WSHPA8. ISSN: 0001-6209.  
 DOCUMENT TYPE: Article  
 LANGUAGE: Chinese  
 ENTRY DATE: Entered STN: 9 Nov 2005  
       Last Updated on STN: 9 Nov 2005

AB To improve the aerobic growth performance of *Lactococcus lactis* subsp. *cremoris* NZ9000, the \*\*\*gene\*\*\* nag encoding the mature microbial \*\*\*transglutaminase\*\*\* was amplified from the chromosomal DNA of \*\*\*Streptovorticillium\*\*\* mobaraense and then \*\*\*cloned\*\*\* into the nisin-inducible \*\*\*expression\*\*\* vector pNZ8148. The resulting plasmid pFL001 was transformed into strain NZ9000 by electroporation. Compared with strain NZ9000 harboring pNZ8148 (the control strain), strain NZ9000 harboring pFL001 (the recombinant strain) had a remarkably improved aerobic growth performance. When grown aerobically under non-pH-controlled conditions, the maximal biomass of the recombinant strain reached 4.13g/L, which was 11-fold higher than the growth of the control strain (0.34g/L). When grown aerobically with the pH controlled at 6.5 +/- 0.1, the maximal biomass of the recombinant strain reached 4.73g/L, which was an 80% increase compared with the growth of the control strain. In addition, the efficiency of biomass synthesis relative to glucose consumption (Y-x/s) of the recombinant strain, 71.7g of biomass per mol of glucose, was 1.6-fold higher than that of the control strain. The significantly improved growth performance of the recombinant strain

might be attributed to the expression of mtg in the recombinant strain, which might increase intracellular pH and save part of the energy(ATP) that was originally used for pumping the cytoplasmic H<sup>+</sup>, and as a consequence, the energy used for growth increased accordingly.

L6 ANSWER 6 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:756877 CAPLUS

DOCUMENT NUMBER: 141:272619

TITLE: Co-expression of Streptovorticillium mobaraense  
neutral metalloprotease for production of mature  
microbial transglutaminase

INVENTOR(S): Umezawa, Yukiko; Yokoyama, Keiichi; Kikuchi, Yoshimi;  
Date, Masayo; Onishi, Norimasa

PATENT ASSIGNEE(S): Ajinomoto Co. Inc., Japan

SOURCE: PCT Int. Appl., 56 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004078973	A1	20040916	WO 2004-JP2923	20040305
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, RW, BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2518049	AA	20040916	CA 2004-2518049	20040305
EP 1602722	A1	20051207	EP 2004-717856	20040305
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK				
US 2006019367	A1	20060126	US 2005-218780	20050906
PRIORITY APPLN. INFO.: JP 2003-61623 A 20030307				
WO 2004-JP2923 W 20040305				

AB This invention provides two neutral metalloprotease of Streptovorticillium mobaraense, SVP35 and SVP70, which selectively cleave the pro-structure moiety of a microorganism-origin protransglutaminase. The DNA and protein sequences of SVP35 were disclosed. An mature transglutaminase were prepd. from protransglutaminase which was cleaved by neutral metalloprotease co-expressed in the expression host.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 7 OF 36 USPATFULL on STN

ACCESSION NUMBER: 2004:165359 USPATFULL

TITLE: Methods for secretory production of proteins

INVENTOR(S): Kikuchi, Yoshimi, Kawasaki-shi, JAPAN

Date, Masayo, Kawasaki-shi, JAPAN

Umezawa, Yukiko, Kawasaki-shi, JAPAN

Yokoyama, Keiichi, Kawasaki-shi, JAPAN

Heima, Haruo, Kawasaki-shi, JAPAN

Matsui, Hiroshi, Kawasaki-shi, JAPAN

NUMBER KIND DATE

PATENT INFORMATION: US 2004126847 A1 20040701

APPLICATION INFO.: US 2003-673860 A1 20030930 (10)

RELATED APPLN. INFO.: Continuation of Ser. No. WO 2002-JP2978, filed on 27 Mar 2002, UNKNOWN

NUMBER DATE

PRIORITY INFORMATION: JP 2001-98808 20010330

DOCUMENT TYPE: Utility

FILE SEGMENT: APPLICATION

LEGAL REPRESENTATIVE: AJINOMOTO CORPORATE SERVICES, LLC, INTELLECTUAL  
PROPERTY DEPARTMENT, 1120 CONNECTICUT AVE., N.W.,  
WASHINGTON, DC, 20036

NUMBER OF CLAIMS: 11

EXEMPLARY CLAIM: 1

LINE COUNT: 2798

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The object of the present invention is to provide a method of producing a heterologous protein by making a coryneform bacterium to produce and efficiently extracellularly secrete (secreto-production) an industrially useful heterologous protein. According to the present invention, a genetic construct is used where a gene sequence encoding an intended protein which is ligated to the downstream of a sequence encoding the signal peptide derived from a coryneform bacterium, the gene construct is introduced into a mutant coryneform bacterium which has a capacity of secreting the heterologous protein at least 2-fold higher than the wild type *Corynebacterium glutamicum* ATCC 13869, the mutant coryneform bacterium is cultured and the extracellularly released heterologous protein is recovered.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 8 OF 36 USPATFULL on STN

ACCESSION NUMBER: 2004:7420 USPATFULL

TITLE: Method of producing polyvalent antigens

INVENTOR(S): Chou, Szu-Yi, Sunnyvale, CA, UNITED STATES

NUMBER KIND DATE

PATENT INFORMATION: US 2004005654 A1 20040108

APPLICATION INFO.: US 2002-231114 A1 20020828 (10)

NUMBER DATE

PRIORITY INFORMATION: US 2002-361166P 20020301 (60)

US 2002-363445P 20020308 (60)

DOCUMENT TYPE: Utility

FILE SEGMENT: APPLICATION

LEGAL REPRESENTATIVE: MOSER, PATTERSON & SHERIDAN, L.L.P., Suite 1500, 3040  
Post Oak Blvd., Houston, TX, 77056

NUMBER OF CLAIMS: 80

EXEMPLARY CLAIM: 1

NUMBER OF DRAWINGS: 11 Drawing Page(s)

LINE COUNT: 3452

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Embodiments of the invention generally provide methods and compositions for producing polyvalent antigens. In one aspect, the invention provides a method for producing a cross-linked antigen. In another aspect, the invention provides a method of using cross-linked products as antigens to immunize animals and induce strong immune responses.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 9 OF 36 USPATFULL on STN

ACCESSION NUMBER: 2004:1829 USPATFULL

TITLE: Method of producing disease-specific antigens

INVENTOR(S): Chou, Szu-Yi, Sunnyvale, CA, UNITED STATES

NUMBER KIND DATE

PATENT INFORMATION: US 2004001848 A1 20040101

APPLICATION INFO.: US 2002-231213 A1 20020828 (10)

NUMBER DATE

PRIORITY INFORMATION: US 2002-361166P 20020301 (60)

US 2002-363445P 20020308 (60)

DOCUMENT TYPE: Utility

FILE SEGMENT: APPLICATION

LEGAL REPRESENTATIVE: MOSER, PETERSON & SHERIDAN, L.L.P., Suite 1500, 3040

Post Oak Blvd., Houston, TX, 77056

NUMBER OF CLAIMS: 64  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 11 Drawing Page(s)  
LINE COUNT: 3423

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Embodiments of the invention generally provide methods and compositions for producing disease-specific antigens. In one aspect, the invention provides a method of producing an antigen specific for Alzheimer's disease. In another aspect, the invention provides a method of producing a polyvalent antigen for two or more diseases. In yet another aspect, compositions of antigens are prepared and provided to immunize animals and induce strong immune responses.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 10 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 3

ACCESSION NUMBER: 2004:984272 CAPLUS

DOCUMENT NUMBER: 142:175422

TITLE: The pro-peptide of *Streptomyces mobaraensis* transglutaminase functions in cis and in trans to mediate efficient secretion of active enzyme from methylotrophic yeasts

AUTHOR(S): Yurimoto, Hiroya; Yamane, Maiko; Kikuchi, Yoshimi; Matsui, Hiroshi; Kato, Nobuo; Sakai, Yasuyoshi

CORPORATE SOURCE: Division of Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Kyoto, 606-8502, Japan

SOURCE: Bioscience, Biotechnology, and Biochemistry (2004), 68(10), 2058-2069

CODEN: BBBIEJ; ISSN: 0916-8451

PUBLISHER: Japan Society for Bioscience, Biotechnology, and Agrochemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Transglutaminase (TGase) from the actinomycete *Streptomyces mobaraensis* is a useful enzyme in the food industry, and development of an efficient prodn. system for it would be desirable. Herein we report secretion of TGase in an enzymically active form by methylotrophic yeasts as expression hosts. Secretory prodn. of active TGase required a pro-peptide from TGase. When an artificial Kex2-endoropeptidase recognition site was placed between the pro-peptide and mature TGase, secretion and in vitro maturation of TGase depended on Kex2-dependent cleavage. Unexpectedly, coexpression of unlinked pro-peptide with mature TGase yielded efficient secretion of the active enzyme. These results indicate that the pro-peptide from TGase functions not only in an intramol. but also in an intermol. manner. Site-directed mutagenesis of putative N-glycosylation sites increased the productivity of the active TGase further. A recombinant *Candida boidinii* strain was found to secrete active TGase up to 1.83 U/mL (about 90 mg/l) after 119 h of cultivation.

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 11 OF 36 SCISEARCH COPYRIGHT (c) 2006 The Thomson Corporation on STN DUPLICATE 4

ACCESSION NUMBER: 2004:151866 SCISEARCH

THE GENUINE ARTICLE: 768WE

TITLE: Cloning and \*\*\*expression\*\*\* of the \*\*\*transglutaminase\*\*\* \*\*\*gene\*\*\* from \*\*\*Streptovorticillium\*\*\* ladakanum in \*\*\*Streptomyces\*\*\* lividans

AUTHOR: Lin Y S; Chao M L; Liu C H; Chu W S (Reprint)

CORPORATE SOURCE: FIRDI, POB 246, Hsinchu 30099, Taiwan (Reprint); FIRDI, Hsinchu 30099, Taiwan

COUNTRY OF AUTHOR: Taiwan

SOURCE: PROCESS BIOCHEMISTRY, (30 JAN 2004) Vol. 39, No. 5, pp. 591-598.

ISSN: 0032-9592.

PUBLISHER: ELSEVIER SCI LTD, THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD OX5 1GB, OXON, ENGLAND.

DOCUMENT TYPE: Article; Journal



LANGUAGE: English

REFERENCE COUNT: 41

ENTRY DATE: Entered STN: 20 Feb 2004

Last Updated on STN: 20 Feb 2004

\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

AB A gene, tgB1, encoding transglutaminase (TGase) in *Streptovorticillium ladakanum* B1 was cloned and expressed in *Streptomyces lividans*. The tgB1 gene consisted of an open reading frame of 1230 nucleotides encoding a protein of 410 amino acids with a calculated molecular weight of 45 780 Da. The deduced amino acid sequence is highly homologous to TGases from *Streptovorticillium* spp. but exhibits little homology with TGases of *Bacillus subtilis* and mammalian origins. The putative active site, YGCVG, conserved in *Streptovorticillium* TGases is also present in TgB1. No -10 and -35 regions of the putative promoter could be identified. Two A+T-rich regions, characteristics of a promoter sequence, were found at bp 238-269 and bp 631-681. The tgB1 gene was expressed in *S. lividans* JT46 under the control of its endogenous promoter. Immunoblotting of SDS-PAGE revealed that, in addition to protein bands with sizes corresponding to those of the unprocessed and mature TgB1, several bands with sizes in between reacting with anti-TgB1 IgG were present in the culture supernatant of the recombinant strain. This suggests that the recombinant TgB1 was not correctly processed during secretion in the transformed *S. lividans* JT46. (C) 2003 Elsevier Ltd. All rights reserved.

L6 ANSWER 12 OF 36 Elsevier BIOBASE COPYRIGHT 2006 Elsevier Science B.V.  
on STN DUPLICATE

ACCESSION NUMBER: 2004137842 ESBIOBASE

TITLE: Enzymatic labeling of a single chain variable fragment of an antibody with alkaline phosphatase by microbial transglutaminase

AUTHOR: Takazawa T.; Kamiya N.; Ueda H.; Nagamune T.

CORPORATE SOURCE: T. Nagamune, Dept. of Chemistry and Biotechnology, School of Engineering, University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan.  
E-mail: nagamune@bio.t.u-tokyo.ac.jp

SOURCE: Biotechnology and Bioengineering, (20 MAY 2004), 86/4 (399-404), 20 reference(s)

CODEN: BIBIAU ISSN: 0006-3592

DOCUMENT TYPE: Journal; Article

COUNTRY: United States

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Functional cross-linking of a single chain Fv fragment of anti-hen egg-white lysozyme antibody (scFv) and alkaline phosphatase (AP) was explored using microbial \*\*\*transglutaminase\*\*\* (MTG) from \*\*\**Streptomyces*\*\*\* mobaraensis. A specific peptidyl linker for MTG was genetically fused to the N-terminus of each protein and the resultant proteins were obtained separately by bacterial \*\*\*expression\*\*\*. The \*\*\*recombinant\*\*\* peptide-tagged scFv and AP were site-specifically cross-linked by MTG through the extra peptidyl linkers in vitro, which mainly yielded the heterodimer (i.e., scFv-AP conjugate). The enzymatic cross-linking reaction had little influence on either the antigen-binding ability of the scFv moiety or the enzymatic activity of the AP moiety of the conjugate, allowing use within an enzyme-linked immunosorbent assay. The results obtained suggest that the enzymatic approach with MTG facilitates the posttranslational construction of functional fusion proteins. .COPYRGT. 2004 Wiley Periodicals, Inc.

L6 ANSWER 13 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:102197 CAPLUS

DOCUMENT NUMBER: 143:319789

TITLE: Cloning and expression of transglutaminase gene in *Escherichia coli*

AUTHOR(S): Wang, Li; Chang, Zhongyi; Li, Pingzuo

CORPORATE SOURCE: Life Science College, East China Normal University, Shanghai, 200062, Peop. Rep. China

SOURCE: Zhongguo Shengwu Gongcheng Zazhi (2004), 24(11), 56-60

CODEN: ZSGZAW; ISSN: 1671-8135

PUBLISHER: Zhongguo Shengwu Gongcheng Zazhishe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB TGase ( \*\*\*Transglutaminase\*\*\* ) \*\*\*gene\*\*\* from  
\*\*\*Streptovorticillium\*\*\* mobaraense was \*\*\*cloned\*\*\* into  
\*\*\*expression\*\*\* vector pET30a. The result of sequencing anal.  
indicated that the TGase whole length gene was obtained. The TGase gene  
was transformed into E. coli BL21 (DE3). Its expression was induced by 1  
mmol/L IPTG. The result of SDS-PAGE anal. showed that there is a new  
protein band which is of 17% in total bacterial protein. Dolt blotting  
and Western blotting anal. proved that the inducible band could be  
specifically recognized by immol/Lune serum come from rabbit, which have  
been injected with TGase. Then the recombinant protein was purified and  
its biol. activity of amine-gamma-glutamyl-transferase was  
characterized, which can reach 15.1U/mg protein.

L6 ANSWER 14 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:466515 CAPLUS

DOCUMENT NUMBER: 143:167681

TITLE: Streptovorticillium ladakanum transglutaminase gene  
and use thereof in food processing and leather  
processing

INVENTOR(S): Lin, Yixing; Liu, Changxie; Zhu, Wensheng

PATENT ASSIGNEE(S): Institute of Food Industry Development, Peop. Rep.  
China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 25 pp.

CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1427078	A	20030702	CN 2001-143722	20011218
PRIORITY APPLN. INFO.:			CN 2001-143722	20011218

AB The invention provides sequences of Streptovorticillium ladakanum  
transglutaminase gene and its encoded protein. The invention relates to  
the prepn. of the polypeptide having \*\*\*transglutaminase\*\*\* by  
\*\*\*recombinant\*\*\* \*\*\*expression\*\*\* in \*\*\*Streptomyces\*\*\*  
lividans. The invention also relates to the application of the  
transglutaminase polypeptide in food processing and leather processing.

L6 ANSWER 15 OF 36 USPATFULL on STN

ACCESSION NUMBER: 2003:318732 USPATFULL

TITLE: Method of producing transglutaminase reactive compound

INVENTOR(S): Chou, Szu-Yi, Sunnyvale, CA, UNITED STATES

NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003224476	A1 20031204
APPLICATION INFO.:	US 2002-231063	A1 20020828 (10)

NUMBER	DATE
PRIORITY INFORMATION:	US 2002-361166P 20020301 (60)
	US 2002-363445P 20020308 (60)
DOCUMENT TYPE:	Utility
FILE SEGMENT:	APPLICATION
LEGAL REPRESENTATIVE:	MOSER, PATTERSON & SHERIDAN, L.L.P., Suite 1500, 3040 Post Oak Blvd., Houston, TX, 77056
NUMBER OF CLAIMS:	36
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	11 Drawing Page(s)
LINE COUNT:	3307
CAS INDEXING IS AVAILABLE FOR THIS PATENT.	
AB	A method for producing transglutaminase-reactive compounds is provided. In one aspect, transglutaminase reactivity of a compound is enhanced. In another aspect, transglutaminase non-reactive compounds are modified to be reactive with transglutaminase.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 16 OF 36 USPATFULL on STN  
ACCESSION NUMBER: 2003:312260 USPATFULL  
TITLE: Method of producing transglutaminase having broad  
substrate activity  
INVENTOR(S): Chou, Szu-Yi, Sunnyvale, CA, UNITED STATES

NUMBER KIND DATE

PATENT INFORMATION: US 2003219857 A1 20031127  
APPLICATION INFO.: US 2002-231470 A1 20020828 (10)

NUMBER DATE

PRIORITY INFORMATION: US 2002-361166P 20020301 (60)  
US 2002-363445P 20020308 (60)  
DOCUMENT TYPE: Utility  
FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: MOSER, PATTERSON & SHERIDAN, L.L.P., Suite 1500, 3040  
Post Oak Blvd., Houston, TX, 77056  
NUMBER OF CLAIMS: 80  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 11 Drawing Page(s)  
LINE COUNT: 3442

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Embodiments of the invention generally provide methods and compositions for producing recombinant transglutaminases. The purified recombinant transglutaminases of the invention are reactive to a broad range of compounds and exhibit broad substrate activity. In one embodiment, *Streptovercillium mobaraense* (ATCC 29032), and *Streptovercillium cinnamoneum* (ATCC 11874) recombinant transglutaminase fusion proteins purified from *E. coli* are provided to a better yield, higher purity, and activity than hitherto possible by recombinant DNA technology.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 17 OF 36 USPATFULL on STN  
ACCESSION NUMBER: 2003:312256 USPATFULL  
TITLE: Method of cross-linking a compound  
INVENTOR(S): Chou, Szu-Yi, Sunnyvale, CA, UNITED STATES

NUMBER KIND DATE

PATENT INFORMATION: US 2003219853 A1 20031127  
APPLICATION INFO.: US 2002-231298 A1 20020828 (10)

NUMBER DATE

PRIORITY INFORMATION: US 2002-361166P 20020301 (60)  
US 2002-363445P 20020308 (60)  
DOCUMENT TYPE: Utility  
FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: MOSER, PATTERSON & SHERIDAN, L.L.P., Suite 1500, 3040  
Post Oak Blvd., Houston, TX, 77056  
NUMBER OF CLAIMS: 58  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 11 Drawing Page(s)  
LINE COUNT: 3367

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides a method of producing a cross-linked compound by a biological agent. In one aspect, cross-linking a compound requires a change of color in the cross-linking reaction mixture. In another aspect, attaching one or more amino acid residues to the compound is also required. In yet another aspect, the compound is obtained, and denaturing the compound in the presence of a denaturant and refolding the compound are performed before cross-linking the compound by a solution of the biological agent.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 18 OF 36 USPATFULL on STN  
ACCESSION NUMBER: 2003:165553 USPATFULL  
TITLE: Transglutaminase gene of Streptovorticillium ladakanum  
and the transglutaminase encoded therefrom  
INVENTOR(S): Lin, Yi-Shin, Hsinchu, TAIWAN, PROVINCE OF CHINA  
Liu, Chang-Hsiesh, Ser Tou, TAIWAN, PROVINCE OF CHINA  
Chu, Wen-Shen, Hsinchu, TAIWAN, PROVINCE OF CHINA  
PATENT ASSIGNEE(S): FOOD INDUSTRY RESEARCH AND DEVELOPMENT INSTITUTE  
(non-U.S. corporation)

NUMBER KIND DATE  
-----

PATENT INFORMATION: US 2003113407 A1 20030619  
US 6660510 B2 20031209  
APPLICATION INFO.: US 2001-22809 A1 20011217 (10)  
DOCUMENT TYPE: Utility  
FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: LADAS & PARRY, 26 WEST 61ST STREET, NEW YORK, NY, 10023  
NUMBER OF CLAIMS: 13  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 7 Drawing Page(s)  
LINE COUNT: 334  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
AB The invention provides a DNA molecule encoding transglutaminase of  
Streptovorticillium ladakanum, the encoded transglutaminase and the use  
of the transglutaminase in industrial process.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 19 OF 36 USPATFULL on STN  
ACCESSION NUMBER: 2003:120265 USPATFULL  
TITLE: Process for producing transglutaminase  
INVENTOR(S): Kikuchi, Yoshimi, Kawasaki-shi, JAPAN  
Date, Masayo, Kawasaki-shi, JAPAN  
Umezawa, Yukiko, Kawasaki-shi, JAPAN  
Yokoyama, Keiichi, Kawasaki-shi, JAPAN  
Matsui, Hiroshi, Kawasaki-shi, JAPAN  
PATENT ASSIGNEE(S): AJINOMOTO CO. INC, Tokyo, JAPAN (non-U.S. corporation)

NUMBER KIND DATE  
-----

PATENT INFORMATION: US 2003082746 A1 20030501  
APPLICATION INFO.: US 2002-112488 A1 20020401 (10)  
RELATED APPLN. INFO.: Continuation of Ser. No. WO 2000-JP6780, filed on 29  
Sep 2000, UNKNOWN

NUMBER DATE  
-----

PRIORITY INFORMATION: JP 1999-280098 19990930  
JP 2000-194043 20000628  
DOCUMENT TYPE: Utility  
FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC, FOURTH  
FLOOR, 1755 JEFFERSON DAVIS HIGHWAY, ARLINGTON, VA,  
22202  
NUMBER OF CLAIMS: 30  
EXEMPLARY CLAIM: 1  
LINE COUNT: 3369  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
AB The present invention relates to a process for secretory production of a  
foreign protein, in particular, transglutaminase by a coryneform  
bacterium.

According to the present invention, a process is provided for the  
secretory production of a foreign protein, in particular,  
transglutaminase, by making a coryneform bacterium to produce an  
industrially useful foreign protein, in particular, transglutaminase and  
efficiently release the product extracellularly (i.e., secretory  
production).

An intended foreign protein, in particular, transglutaminase, is produced by using an expression construct wherein the gene sequence of the intended foreign protein containing the pro-structure part, in particular, pro-transglutaminase gene sequence, is ligated to the downstream of a sequence encoding the signal peptide region from a coryneform bacterium, introducing this expressional genetic construct into a coryneform bacterium, culturing the thus transformed coryneform bacterium, and treating the extracellularly released protein with a protease, etc. to cleave and eliminate the pro-part.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 20 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:1023558 CAPLUS

DOCUMENT NUMBER: 143:151949

TITLE: Production and molecular cloning of Streptomyces transglutaminase

AUTHOR(S): Chiang, C. M.; Lue, M. Y.

CORPORATE SOURCE: Department of Products Development, Taiwan Sugar Research Institute, Tainan, Taiwan

SOURCE: Taiwan Tangye Gongsi Yanjiuso Yanjiu Huibao (2003), 179-180, 49-69

CODEN: TTGYA4

PUBLISHER: Taiwan Sugar Research Institute

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Transglutaminases (TGase) are enzymes known to catalyze an acyl transfer reaction of gamma.-carboxamide groups of glutamine residues in peptide chains. Owing to their ability to catalyze the intra/inter-mol. covalent crosslinking of most proteins, TGase are usually used in food industry to improve functional properties of food and to increase nutritional value. Methods have been developed to use TGases as agents for wound healing in surgical treatments, for promoting adhesion between tissue surfaces, and for repair of defects or lesions in cartilage. TGase can also be applied in microcapsule prepn. and enzyme immobilization. They are multifunctional enzymes with com. value. In this study, we have screened TGase-producing microorganisms from several Streptomyces species. Within them, *S. ladakanum* and *S. mobaraense* are the most productive. The TGase are produced as an extracellular enzyme. The highest activity of TGase can be reached around 55-72 h after inoculation. The TGase from *S. ladakanum* was purified to homogeneity by affinity chromatog. with 42 fold purifying power and 53% recovery. The enzyme was characterized to show pI around 8, optimum temp. at 50.degree., and optima pH between 4 to 7. The TGase gene from *S. ladakanum* coding for mature enzyme was partially cloned to obtain a 959-bp fragment. The TGase gene from *S. mobaraense* was fully cloned to obtain a 1242-bp fragment. Comparing with known TGase genes from Streptovorticillium species, they show similarity higher than 82%. When the gene of *S. mobaraense* was cloned into *E. coli*, the protein was mainly expressed in inclusion bodies. When the gene was cloned into *Pichia pastoris*, for unknown reason, the protein expression was not detected and the induction causes the death of the cells.

L6 ANSWER 21 OF 36 USPATFULL on STN

ACCESSION NUMBER: 2002:329845 USPATFULL

TITLE: Method of producing microbial transglutaminase

INVENTOR(S): Taguchi, Seiichi, Kawagoe-shi, JAPAN

Momose, Haruo, Kamakura-shi, JAPAN

PATENT ASSIGNEE(S): AJINOMOTO CO., INC., Tokyo, JAPAN (non-U.S. corporation)

NUMBER KIND DATE

PATENT INFORMATION: US 2002187525 A1 20021212

APPLICATION INFO.: US 2002-124429 A1 20020418 (10)

WO 2000-JP7135 20001013

NUMBER DATE

PRIORITY INFORMATION: JP 1999-295649 19991018

DOCUMENT TYPE: Utility  
FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC, FOURTH  
FLOOR, 1755 JEFFERSON DAVIS HIGHWAY, ARLINGTON, VA,  
22202

NUMBER OF CLAIMS: 7  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 1 Drawing Page(s)  
LINE COUNT: 816

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention relates to a method of secretory production of  
transglutaminase by a microorganism.

The object of the present invention is to provide a method of produce a  
large amount of transglutaminase by causing Streptomyces bacteria to  
produce and secrete a large amount of transglutaminase.

The present invention is a method of producing a large amount of  
\*\*\*transglutaminase\*\*\*, comprising culturing a \*\*\*Streptomyces\*\*\*  
bacterium harboring an \*\*\*expression\*\*\* plasmid containing a  
\*\*\*transglutaminase\*\*\* \*\*\*gene\*\*\* from actinomycetes and its  
native (naturally occurring) promoter, causing the bacterium to secrete  
protransglutaminase during the initial phase to the middle phase of  
culturing, and obtaining mature \*\*\*transglutaminase\*\*\* (active form)  
by cleaving and removing the pro9-structure, for example, with proteases  
derived from \*\*\*Streptomyces\*\*\*.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 22 OF 36 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN

ACCESSION NUMBER: 2002-382648 [41] WPIDS

CROSS REFERENCE: 2002-361946 [39]

DOC. NO. CPI: C2002-107802

TITLE: Enzymatic treatment of proteinaceous fibers comprising  
e.g., wool, includes contacting protein fiber with  
aqueous solution comprising tyrosinase enzyme.

DERWENT CLASS: D16 F06

INVENTOR(S): BUCHERT, J; HEINE, E; LANTTO, R; NIKU-PAAVOLA, M;  
SCHOENBERG, C; SCHONBERG, C

PATENT ASSIGNEE(S): (VALW) VALTION TEKILLINEN TUTKIMUSKESKUS; (BUCH-I)  
BUCHERT J; (HEIN-I) HEINE E; (LANT-I) LANTTO R; (NIKU-I)  
NIKU-PAAVOLA M; (SCHO-I) SCHONBERG C

COUNTRY COUNT: 97

PATENT INFORMATION:

PATENT NO KIND DATE WEEK LA PG

WO 2002014595 A1 20020221 (200241)\* EN 40

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
NL OA PT SD SE SL SZ TR TZ UG ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK  
DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR  
KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU  
SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

FI 2000001807 A 20020216 (200239)

AU 2001082198 A 20020225 (200245)

EP 1311719 A1 20030521 (200334) EN

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
RO SE SI TR

US 2003177589 A1 20030925 (200364)

JP 2004506816 W 20040304 (200417) 64

FI 113182 B1 20040315 (200420)

NZ 524051 A 20050624 (200545)

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2002014595	A1	WO 2001-FI723	20010815
FI 2000001807	A	FI 2000-1807	20000815

AU 2001082198 A	AU 2001-82198	20010815
EP 1311719 A1	EP 2001-960799	20010815
	WO 2001-FI723	20010815
US 2003177589 A1	WO 2001-FI723	20010815
	US 2003-344750	20030214
JP 2004506816 W	WO 2001-FI723	20010815
	JP 2002-519714	20010815
FI 113182 B1	FI 2000-1807	20000815
NZ 524051 A	NZ 2001-524051	20010815
	WO 2001-FI723	20010815

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2001082198 A	Based on	WO 2002014595
EP 1311719 A1	Based on	WO 2002014595
JP 2004506816 W	Based on	WO 2002014595
FI 113182 B1	Previous Publ.	FI 2000001807
NZ 524051 A	Based on	WO 2002014595

PRIORITY APPLN. INFO: FI 2000-1808 20000815; FI  
2000-1807 20000815

AN 2002-382648 [41] WPIDS

CR 2002-361946 [39]

AB WO 200214595 A UPAB: 20050715

NOVELTY - Enzymatic treatment of proteinaceous fibers comprises contacting protein fiber with an aqueous solution comprising tyrosinase enzyme to oxidize tyrosine residues in proteinaceous fibers.

USE - For treating proteinaceous fibers comprising, e.g., fabric, garment, top or animal or human hair, wool, silk, spidersilk.

ADVANTAGE - The method imparts improvements in shrink-resistance and other properties but causes less fiber damage than known enzymatic treatments. The tyrosinase treatment can result in more crosslinking, leading to greater strength, better creasing behavior and a reduction in felting shrinkage. The wettability may be altered due to surface oxidation so that dyeing or printing of the fabric is improved. The treatment also imparts machine washability and improves comfort factor of wool or other protein-containing animal fiber apparel.

DESCRIPTION OF DRAWING(S) - The figure shows tyrosine activity, pH and amount of viable cells during cultivation of the tyrosinase producing bacterium DSM 13540.

Dwg. 2/6

L6 ANSWER 23 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:300844 CAPLUS

DOCUMENT NUMBER: 134:322699

TITLE: Biosynthetic production of microbial transglutaminase from Streptovorticillium in Streptomyces lividans

INVENTOR(S): Taguchi, Seiichi; Momose, Haruo

PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan

SOURCE: PCT Int. Appl., 41 pp.

CODEN: PIXXDZ

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001029187	A1	20010426	WO 2000-JP7135	20001013
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				

JP 2001186884 A2 20010710 JP 1999-350319 19991209  
CA 2387823 AA 20010426 CA 2000-2387823 20001013  
AU 2000076867 A5 20010430 AU 2000-76867 20001013  
EP 1225217 A1 20020724 EP 2000-966485 20001013  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, SI, LT, LV, FI, RO, MK, CY, AL  
BR 2000014811 A 20020827 BR 2000-14811 20001013  
US 2002187525 A1 20021212 US 2002-124429 20020418  
PRIORITY APPLN. INFO.: JP 1999-295649 A 19991018  
WO 2000-JP7135 W 20001013  
AB Biosynthetic prodn. of microbial \*\*\*transglutaminase\*\*\* (TGase; EC  
2.3.2.13) in \*\*\*Streptomyces\*\*\* by \*\*\*recombinant\*\*\*  
\*\*\*expression\*\*\* of proTGase and removal of the pro-structure with  
\*\*\*Streptomyces\*\*\* -origin protease, is disclosed. Recombinant  
expression of TGase gene from Streptovorticillium cinnamoneum CBS 683.68  
under the regulation of its endogenous promoter in Streptomyces lividans,  
is described.  
REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 24 OF 36 USPATFULL on STN  
ACCESSION NUMBER: 2001:25644 USPATFULL  
TITLE: Microbial transglutaminases, their production and use  
INVENTOR(S): Bech, Lisbeth, Hiller.o slashed.d, Denmark  
N.o slashed.rrevang, Iben Angelica, Aller.o slashed.d,  
Denmark  
Halkier, Torben, Birker.o slashed.d, Denmark  
Rasmussen, Grethe, K.o slashed.benhavn, Denmark  
Schafer, Thomas, Farum, Germany, Federal Republic of  
Andersen, Jens T.o slashed.nne, N.ae butted.rum,  
Denmark  
PATENT ASSIGNEE(S): Novo Nordisk A/S, Bagsvaerd, Denmark (non-U.S.  
corporation)

NUMBER KIND DATE

PATENT INFORMATION: US 6190879 B1 20010220  
APPLICATION INFO.: US 1999-294565 19990420 (9)  
RELATED APPLN. INFO.: Continuation of Ser. No. US 1997-793426, filed on 25  
Feb 1997, now patented, Pat. No. US 6100053

NUMBER DATE

PRIORITY INFORMATION: DK 1994-990 19940826  
DK 1995-947 19950824  
DOCUMENT TYPE: Utility  
FILE SEGMENT: Granted  
PRIMARY EXAMINER: Slobodyansky, Elizabeth  
LEGAL REPRESENTATIVE: Lambiris, Elias J., Green, Reza  
NUMBER OF CLAIMS: 8  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 3 Drawing Figure(s); 3 Drawing Page(s)  
LINE COUNT: 1939  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
AB A method for identifying a transglutaminase-producing microorganism  
based on a selective assay is disclosed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 25 OF 36 USPATFULL on STN  
ACCESSION NUMBER: 2000:102086 USPATFULL  
TITLE: Microbial transglutaminases, their production and use  
INVENTOR(S): Bech, Lisbeth, Hiller.o slashed.d, Denmark  
N.o slashed.rrevang, Iben Angelica, Aller.o slashed.d,  
Denmark  
Halkier, Torben, Birker.o slashed.d, Denmark  
Rasmussen, Grethe, K.o slashed.benhavn NV, Denmark  
Schafer, Thomas, Farum, Germany, Federal Republic of  
Andersen, Jens T.o slashed.nne, N.ae butted.rum,  
Denmark



PATENT ASSIGNEE(S): Novo Nordisk A/S, Bagsv.æ buttet.rd, Germany, Federal  
Republic of (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6100053		20000808
	WO 9606931	19960307	
APPLICATION INFO.:	US 1997-793426		19970225 (8)
	WO 1995-DK347	19950828	
		19970225	PCT 371 date
		19970225	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	DK 1994-990	19940826
	DK 1995-947	19950824
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	Granted	
PRIMARY EXAMINER:	Prouty, Rebecca E.	
ASSISTANT EXAMINER:	Slobodyansky, Elizabeth	
LEGAL REPRESENTATIVE:	Zelson, Esq., Steve T., Green, Esq., Reza	
NUMBER OF CLAIMS:	17	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	3 Drawing Figure(s); 3 Drawing Page(s)	
LINE COUNT:	2225	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Transglutaminase preparations are producible by a wide range of fungi, especially ascomycotina, basidiomycotina and zygomycota, and gram-negative and gram-positive bacteria, especially Streptomyces lydicus, NRRL B-3446. A DNA construct encoding a novel transglutaminase and comprising the DNA sequence obtainable from the plasmid in E. coli, DSM 10175, is also described together with a method of producing the transglutaminases, a composition comprising the transglutaminase and a method for producing a gel or protein gelation composition.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 26 OF 36 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
ACCESSION NUMBER: 2001-070776 [08] WPIDS  
DOC. NO. CPI: C2001-019663  
TITLE: Protein disulfide isomerase variant having increased  
reducing properties and decreased redox potential than  
native proteins, used to reduce allergenicity of allergic  
proteins in feed, food or cosmetic products.  
DERWENT CLASS: D16  
INVENTOR(S): HJORT, C M  
PATENT ASSIGNEE(S): (NOVO) NOVO NORDISK AS; (NOVO) NOVOZYMES AS  
COUNTRY COUNT: 93  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2000070064	A1	20001123 (200108)*	EN	82	
RW:	AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL				
	OA PT SD SE SL SZ TZ UG ZW				
W:	AE AG AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM DZ				
	EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK				
	LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI				
	SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW				
AU 2000045380	A	20001205 (200113)			
EP 1183373	A1	20020306 (200224)	EN		
R:	AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT				
	RO SE SI				

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2000070064	A1	WO 2000-DK265	20000517
AU 2000045380	A	AU 2000-45380	20000517

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2000045380	A Based on	WO 2000070064
EP 1183373	A1 Based on	WO 2000070064

PRIORITY APPLN. INFO: US 1999-137068P 19990602; DK  
1999-683 19990517; DK  
1999-689 19990518

AN 2001-070776 [08] WPIDS

AB WO 200070064 A UPAB: 20010207

NOVELTY - Polypeptides (I) capable of reducing disulfide bonds, with 60% identity or similarity to a fully defined sequence of 281 (S15) or 95 (S17) amino acids as given in specification or to amino acids 21-281 of (S15) (provided that a position in (I) corresponding to amino acid residues numbered 58-61 in a fully defined sequence of 515 amino acids (S13) as given in specification), is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) a method of providing a polypeptide (I) capable of reducing disulfide bonds, comprises altering an amino acid residue in a parent protein disulfide isomerase (PDI) by amending the amino acid X1 to Glu, Ala, Val or Gly and/or the amino acid Y2 to Pro, Thr, Leu or Tyr, in the site corresponding to Cys-X1-Y2-Cys of the parent PDI, to obtain a variant comprising Cys-Gly-Pro-Cys;

(2) a polypeptide (P) obtained by the above method;

(3) a fusion polypeptide comprising (I) or (P) and a fusion partner;

(4) a nucleic acid (II) comprising a nucleotide sequence encoding (I) or (P);

(5) a nucleic acid construct (III) comprising (II) linked to one or more control sequences that direct the production of the polypeptide in a suitably expression host;

(6) a vector (IV) comprising (II);

(7) a transformed host cell comprising (IV);

(8) a recombinant host cell comprising (III);

(9) the preparation of (I) or (P);

(10) the use of (I) or (P) for reducing the allergenicity of a protein, in the preparation of an enzyme preparation for use in food or feed manufacturing, in the manufacture of a cosmetic product for treating scleroproteins, such as human or animal hair or cleaning fabrics;

(11) a composition comprising (I) or (P); and

(12) a food additive or a cosmetic comprising (I) or (P).

USE - (I) is useful for reducing the allergenicity of a protein in food or feed, e.g. gluten or milk based products, including beverages such as infant formula and dietary drinks, by which the digestibility of milk or wheat-based food or feed products is increased. It is also used in the preparation of an enzyme preparation for use in food or feed manufacturing, in the manufacture of a cosmetic product for treating scleroproteins, such as human or animal hair, and for cleaning fabrics (claimed).

ADVANTAGE - (I) reduces the immunogenicity of allergens in milk, and at the same time preserves its nutritional value, in addition to having the benefit of being manufactured on a large industrial scale and also increases the digestibility of milk and other wheat-based food products.  
Dwg.0/7

L6 ANSWER 27 OF 36 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
ACCESSION NUMBER: 2001-070774 [08] WPIDS

DOC. NO. CPI: C2001-019661

TITLE: New transglutaminase enzyme from Streptovorticillium  
mobaraense for e.g. use in gelled products and the  
production of artificial skin.

DERWENT CLASS: B04 D16

INVENTOR(S): DAMODARAN, S

PATENT ASSIGNEE(S): (WISC) WISCONSIN ALUMNI RES FOUND

COUNTRY COUNT: 90

PATENT INFORMATION:

PATENT NO    KIND    DATE    WEEK    LA    PG

WO 2000070026    A1    20001123 (200108)\*    EN    49  
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL  
 OA PT SD SE SL SZ TZ UG ZW  
 W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES  
 FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS  
 LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL  
 TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW  
 AU 2000049955    A    20001205 (200113)

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2000070026	A1	WO 2000-US12601	20000510
AU 2000049955	A	AU 2000-49955	20000510

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2000049955	A Based on	WO 2000070026

PRIORITY APPLN. INFO: US 1999-134158P    19990514

AN 2001-070774 [08]    WPIDS

AB WO 200070026 A UPAB: 20010207

NOVELTY - A transglutaminase which catalyzes the acyl transfer of the gamma-carboxamide group of a glutamine residue in a peptide or protein chain independently of Ca<sup>2+</sup> and which has an activity at pH 9.0 that is 40 % or greater than its activity at pH 7.0, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) a transglutaminase which is isolated from *Streptovorticillium mobaraense* strain ATCC (American Type Culture Collection) No. 27446;

(2) a polypeptide which a sequence (B) of 400 amino acids, given in the specification, or which has a sequence which is more than 82% identical to this sequence using BLAST (basic local alignment search tool) default alignment parameters;

(3) isolated nucleic acids which encode the transglutaminases;

(4) an isolated nucleic acid which encodes (2) and which is selected from:

(i) a nucleic acid molecule with a sequence (A) of 1200 nucleotides, given in the specification; and

(ii) a nucleic acid molecule which remains hybridized to (A) after a final wash at 65 deg. C for 10 minutes in 0.1X SSC (saline sodium citrate), 0.5X SET, and 0.1% sodium pyrophosphate

(5) antibodies which are immunologically specific for the transglutaminases.

USE - \*\*\*Transglutaminases\*\*\* catalyze an acyl transfer reaction of a gamma-carboxamide group of a glutamine residue and a primary amine of a peptide. When the epsilon-amino group of a lysine residue functions as the acyl acceptor, intramolecular and intermolecular cross-linking occurs. When water functions as the acyl acceptor, \*\*\*transglutaminase\*\*\* converts glutamine residues in glutamic acid residues by deamidation. The cross-linking reaction is useful in the food, cosmetic and pharmaceutical industries. \*\*\*Transglutaminase\*\*\* can gel protein, making it useful in production of gelled food, gelled cosmetics, gelatins, yogurt, cheese and other products. The enzyme can also be used to make thermally stable materials such as microcapsules or carriers of immobilized enzymes. The cross-linking reaction is also potentially useful in production of artificial skin. The nucleic acids may be used as probes for detecting the presence and/or \*\*\*expression\*\*\* of \*\*\**Streptovorticillium*\*\*\* \*\*\*transglutaminase\*\*\* \*\*\*genes\*\*\*, or for identifying related \*\*\*genes\*\*\* from other microbial species. They may also be used to produce large quantities of the enzyme. The antibodies can be used for detecting the enzyme.

ADVANTAGE - The new transglutaminase has a higher activity, both at

pH 7.0 and pH 9.0, when compared to commercially available transglutaminases. It has a different susceptibility to several commonly used inhibitors, when compared to previously isolated transglutaminases. These properties broaden the range of application in which the new enzyme can be used.  
Dwg.0/9

L6 ANSWER 28 OF 36 SCISEARCH COPYRIGHT (c) 2006 The Thomson Corporation on  
STN DUPLICATE 6  
ACCESSION NUMBER: 2000:510589 SCISEARCH  
THE GENUINE ARTICLE: 329RZ  
TITLE: Overproduction of microbial transglutaminase in  
Escherichia coli, in vitro refolding, and characterization  
of the refolded form  
AUTHOR: Yokoyama K (Reprint); Nakamura N; Seguro K; Kubota K  
CORPORATE SOURCE: Ajinomoto Co Inc, Cent Res Labs, Kawasaki Ku, 1-1 Suzuki  
Cho, Kanagawa 2100801, Japan (Reprint); Ajinomoto Co Inc,  
Cent Res Labs, Kawasaki Ku, Kanagawa 2100801, Japan;  
Ajinomoto Co Inc, Food Res & Dev Labs, Kawasaki Ku,  
Kanagawa 2100801, Japan  
COUNTRY OF AUTHOR: Japan  
SOURCE: BIOSCIENCE BIOTECHNOLOGY AND BIOCHEMISTRY, (JUN 2000) Vol.  
64, No. 6, pp. 1263-1270.  
ISSN: 0916-8451.  
PUBLISHER: JAPAN SOC BIOSCI BIOTECHN AGROCHEM, JAPAN ACAD SOC CTR  
BLDG, 2-4-6 YAYOI BUNKYO-KU, TOKYO, 113, JAPAN.  
DOCUMENT TYPE: Article; Journal  
LANGUAGE: English  
REFERENCE COUNT: 20  
ENTRY DATE: Entered STN: 2000  
Last Updated on STN: 2000

\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

AB The \*\*\*Streptovorticillium\*\*\* \*\*\*transglutaminase\*\*\* (MTG)  
\*\*\*gene\*\*\*, synthesized previously for yeast \*\*\*expression\*\*\*, was  
modified and resynthesized for overexpression in E. coli. A high-level  
expression plasmid, pUCTRPMTG-02(+), was constructed. Furthermore, to  
eliminate the N-terminal methionine, pUCTRPMTG2 was constructed.  
Cultivation of E. coli transformed with pUCTRPMTG-02(+) or pUCTRPMTG2  
yielded a large amount of MTG (200 similar to 300 mg/liter) as insoluble  
inclusion bodies. The N-terminal amino acid residue of the expressed  
protein was methionine or serine (the second amino acid residue of the  
mature MTG sequence), respectively. Transformed E. coli cells were  
disrupted, and collected pellets of inclusion bodies were solubilized with  
8 M urea. Rapid dilution treatment of solubilized MTC restored the  
enzymatic activity. Refolded MTC, purified by ion-exchange  
chromatography, which had an N-terminal methionine or serine residue,  
showed activity equivalent to that of native MTG. These results indicated  
that recombinant MTC; could be produced efficiently in E. coli.

L6 ANSWER 29 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1999:42538 CAPLUS  
DOCUMENT NUMBER: 130:109259  
TITLE: Manufacture of a \*\*\*transglutaminase\*\*\* of  
\*\*\*Streptovorticillium\*\*\* by \*\*\*expression\*\*\* of  
a synthetic \*\*\*gene\*\*\* in Escherichia coli  
INVENTOR(S): Yokoyama, Keiichi; Nakamura, Nami; Miwa, Tetsuya;  
Seguro, Katsuya  
PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan  
SOURCE: Eur. Pat. Appl., 56 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 889133	A2	19990107	EP 1998-112315	19980702
EP 889133	A3	19990908		
EP 889133	B1	20040310		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LL, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO  
 JP 11075876 A2 19990323 JP 1998-181951 19980629  
 US 6013498 A 20000111 US 1998-109063 19980702  
 CA 2237041 AA 19990104 CA 1998-2237041 19980703  
 CN 1253177 A 20000517 CN 1998-103375 19980703  
 BR 9802403 A 20000111 BR 1998-2403 19980706  
 US 6538122 B1 20030325 US 1999-448310 19991124  
 US 2002173021 A1 20021121 US 2001-884948 20010621  
 US 6821763 B2 20041123  
 US 2002151703 A1 20021017 US 2001-996561 20011130  
 PRIORITY APPLN. INFO.: JP 1997-180010 A 19970704  
 US 1998-109063 A1 19980702  
 US 1999-448310 A3 19991124

AB A method for efficient manuf. of a bacterial transglutaminase in  
 Escherichia coli is described. The method uses a synthetic gene for the  
 enzyme with minor alterations at the N-terminus (deletion of the aspartic  
 acid at position 2) that allow efficient processing by the host methionine  
 aminopeptidase. The gene is expressed from the strong promoter of the trp  
 operon in a multicopy plasmid. A gene in which several of the arginine  
 codons had been changed to those found in highly expressed Escherichia  
 coli genes was constructed and placed under control of the trp promoter.  
 The protein accumulated as inclusion bodies with yields of .gtoreq.300  
 mg/L of protein. The protein was not efficiently processed to remove the  
 N-terminal methionine or N-formylmethionine. When the aspartic acid  
 residue was deleted, processing to leave an N-terminal serine was 90%  
 complete. The enzyme retained its normal specific activity.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 30 OF 36 PASCAL COPYRIGHT 2006 INIST-CNRS. ALL RIGHTS RESERVED.  
 on STN DUPLICATE 7

ACCESSION NUMBER: 1998-0533592 PASCAL  
 COPYRIGHT NOTICE: Copyright .COPYRGT. 1998 INIST-CNRS. All rights  
 reserved.

TITLE (IN ENGLISH): Molecular cloning of the transglutaminase gene from  
 Bacillus subtilis and its expression in Escherichia  
 coli

AUTHOR: KOBAYASHI K.; HASHIGUCHI K.-I.; YOKOZEKI K.; YAMANAKA  
 S.

CORPORATE SOURCE: Central Research Laboratories, Ajinomoto Co., Inc.,  
 Kawasaki-ku, Kawasaki, Kanagawa 210-0801, Japan

SOURCE: Bioscience, biotechnology, and biochemistry, (1998),  
 62(6), 1109-1114, 37 refs.  
 ISSN: 0916-8451

DOCUMENT TYPE: Journal  
 BIBLIOGRAPHIC LEVEL: Analytic  
 COUNTRY: Japan  
 LANGUAGE: English  
 AVAILABILITY: INIST-8935, 354000071289040110  
 AN 1998-0533592 PASCAL

CP Copyright .COPYRGT. 1998 INIST-CNRS. All rights reserved.

AB We \*\*\*cloned\*\*\* and characterized a \*\*\*gene\*\*\*, tgl, encoding  
 \*\*\*transglutaminase\*\*\* in Bacillus subtilis. The tgl \*\*\*gene\*\*\*  
 contained a open reading frame 735-nucleotides long that encoded a  
 245-residue protein with the molecular weight of 28,300. The deduced  
 amino acid \*\*\*sequence\*\*\* had little \*\*\*sequence\*\*\* similarity  
 with \*\*\*sequences\*\*\* of other \*\*\*transglutaminases\*\*\* from a  
 \*\*\*Streptovorticillium\*\*\* sp. or from mammals. The -10 and -35 regions  
 of a putative promoter resembled the consensus \*\*\*sequence\*\*\* for the  
 .sigma. sup.K-dependent promoter. In addition, a \*\*\*sequence\*\*\*  
 similar to the consensus \*\*\*sequence\*\*\* for the GerE binding site was  
 found upstream from this region. These findings suggested that tgl was  
 transcribed in the mother cells during a late stage of sporulation.  
 Evidence for this suggestion was that \*\*\*transglutaminase\*\*\* activity  
 was detected in sporulating cells during the same stage.  
 \*\*\*Transglutaminase\*\*\* activity was detected in Escherichia coli cells  
 transformed with a plasmid for \*\*\*expression\*\*\* of the tgl  
 \*\*\*gene\*\*\*.

L6 ANSWER 31 OF 36 SCISEARCH COPYRIGHT (c) 2006 The Thomson Corporation on  
STN DUPLICATE 8

ACCESSION NUMBER: 1997:420532 SCISEARCH

THE GENUINE ARTICLE: XB630

TITLE: High-level \*\*\*expression\*\*\* of the chemically  
synthesized \*\*\*gene\*\*\* for microbial  
\*\*\*transglutaminase\*\*\* from \*\*\*Streptovorticillium\*\*\*  
in Escherichia coli

AUTHOR: Kawai M (Reprint); Takehana S; Takagi H

CORPORATE SOURCE: AJINOMOTO CO INC, CENT RES LABS, KAWASAKI KU, KAWASAKI,  
KANAGAWA 210, JAPAN

COUNTRY OF AUTHOR: JAPAN

SOURCE: BIOSCIENCE BIOTECHNOLOGY AND BIOCHEMISTRY, (MAY 1997) Vol.  
61, No. 5, pp. 830-835.  
ISSN: 0916-8451.

PUBLISHER: JAPAN SOC BIOSCI BIOTECHN AGROCHEM, JAPAN ACAD SOC CTR  
BLDG, 2-4-6 YAYOI BUNKYO-KU, TOKYO, 113, JAPAN.

DOCUMENT TYPE: Article; Journal

LANGUAGE: English

REFERENCE COUNT: 25

ENTRY DATE: Entered STN: 1997

Last Updated on STN: 1997

\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

AB We developed a novel approach for the high-level production of a  
microbial \*\*\*transglutaminase\*\*\* (TGase) from  
\*\*\*Streptovorticillium\*\*\* in E. coli. The direct \*\*\*expression\*\*\* of  
the TGase \*\*\*gene\*\*\* in E. coli cells did not cause overproduction,  
probably due to the harmful influence of TGase activity, which introduces  
covalent crosslinks between proteins. Therefore, we fused the chemically  
synthesized TGase \*\*\*gene\*\*\* coding for the entire 331 amino acid  
residues at the amino terminus to a bacteriophage T7 \*\*\*gene\*\*\* 10  
leader peptide (260 amino acids) using an inducible \*\*\*expression\*\*\*  
vector. The TGase \*\*\*gene\*\*\* was expressed as inclusion bodies in the  
E. coli cytoplasm. Restoring 15 amino acid residues upstream of the amino  
terminus of the mature TGase by a two-step deletion of the fusion  
\*\*\*sequence\*\*\* facilitated solubilization and subsequent proteolytic  
cleavage, thus releasing mature TGase. Although the mature form had less  
TGase activity than native TGase, because of the poor refolding rate,  
these results suggest that this system is suitable for the efficient  
production of TGase.

L6 ANSWER 32 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:528753 CAPLUS

DOCUMENT NUMBER: 121:128753

TITLE: Preparation of bacterial transglutaminase with  
Escherichia coli

INVENTOR(S): Kawai, Misako; Takehana, Shino; Takagi, Hiroshi

PATENT ASSIGNEE(S): Ajinomoto KK, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06030771	A2	19940208	JP 1992-187038	19920714
PRIORITY APPLN. INFO.:			JP 1992-187038	19920714

AB A method for the prodn. of bacterial transglutaminase in a microbial host  
such as Escherichia coli is described. Transglutaminase of  
Streptovorticillium was modified by substitution with hydrophilic amino  
acid residues to improve its soly. and expressed in Escherichia coli as a  
fusion protein with, e.g., T7 gene 10 peptide. The fusion protein  
produced in the inclusion bodies was solubilized with a denaturant and  
cleaved with Factor Xa. The yield of transglutaminase by the method was  
approx. 20 mg/L.

L6 ANSWER 33 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:44501 CAPLUS

DOCUMENT NUMBER: 122:126889  
 TITLE: The structure of microbial \*\*\*transglutaminase\*\*\*  
 from \*\*\*Streptovorticillium\*\*\* and its  
 \*\*\*gene\*\*\* \*\*\*expression\*\*\* in Escherichia coli  
 AUTHOR(S): Motoki, Masao; Takagi, Hiroshi  
 CORPORATE SOURCE: Food Res. Dev. Lab., Ajinomoto Co., Inc., Kawasaki,  
 210, Japan  
 SOURCE: Baioisaiensu to Indasutori (1994), 52(7), 554-61  
 CODEN: BIDSE6; ISSN: 0914-8981  
 PUBLISHER: Baioindasutori Kyokai  
 DOCUMENT TYPE: Journal; General Review  
 LANGUAGE: Japanese  
 AB A review with 21 refs., on the primary structure of transglutaminase from  
 S. mobaraense and on the cloning of the transglutaminase gene and its  
 expression in E. coli.

L6 ANSWER 34 OF 36 SCISEARCH COPYRIGHT (c) 2006 The Thomson Corporation on  
 STN DUPLICATE 9

ACCESSION NUMBER: 1994:101649 SCISEARCH

THE GENUINE ARTICLE: MU668

TITLE: CHEMICAL SYNTHESIS OF THE \*\*\*GENE\*\*\* FOR MICROBIAL  
 \*\*\*TRANSGLUTAMINASE\*\*\* FROM \*\*\*STREPTOVERTICILLIUM\*\*\*  
 AND ITS \*\*\*EXPRESSION\*\*\* IN ESCHERICHIA-COLI

AUTHOR: TAKEHANA S (Reprint); WASHIZU K; ANDO K; KOIKEDA S;  
 TAKEUCHI K; MATSUI H; MOTOKI M; TAKAGI H

CORPORATE SOURCE: AJINOMOTO CO INC, FOOD RES & DEV LABS, KAWASAKI KU,  
 KAWASAKI, KANAGAWA 210, JAPAN; AMANO PHARMACEUT CO LTD,  
 TSUKUBA RES LABS, TSUKUBA, IBARAKI 305, JAPAN

COUNTRY OF AUTHOR: JAPAN

SOURCE: BIOSCIENCE BIOTECHNOLOGY AND BIOCHEMISTRY, (JAN 1994) Vol.  
 58, No. 1, pp. 88-92.  
 ISSN: 0916-8451.

PUBLISHER: JAPAN SOC BIOSCI BIOTECHN AGROCHEM, JAPAN ACAD SOC CTR  
 BLDG, 2-4-6 YAYOI BUNKYO-KU, TOKYO 113, JAPAN.

DOCUMENT TYPE: Article; Journal

FILE SEGMENT: LIFE; AGRI

LANGUAGE: English

REFERENCE COUNT: 16

ENTRY DATE: Entered STN: 1994

Last Updated on STN: 1994

\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

AB The gene coding for microbial transglutaminase (TGase) from  
 Streptovorticillium, which consists of 331 amino acids, was chemically  
 synthesized. The codons have been substituted for those mainly favored in  
 yeast. Our strategy involved the construction of the TGase gene in five  
 sections (54 oligomers) that contained unique restriction enzyme sites at  
 both ends, which could readily be ligated to form the full-length product.  
 The chemically synthesized gene was inserted downstream from the ompA  
 signal peptide of the E. coli expression vector, pIN-III-ompA, which  
 carries lpp and lac promoters. The resultant plasmid directed the  
 expression of TGase, with the activity being secreted mainly into the  
 periplasmic space of E. coli. The induced gene product was identical with  
 native TGase in size and in immunological properties, though the enzyme  
 activity was low.

L6 ANSWER 35 OF 36 SCISEARCH COPYRIGHT (c) 2006 The Thomson Corporation on  
 STN DUPLICATE 10

ACCESSION NUMBER: 1994:101648 SCISEARCH

THE GENUINE ARTICLE: MU668

TITLE: MOLECULAR-CLONING OF THE \*\*\*GENE\*\*\* FOR MICROBIAL  
 \*\*\*TRANSGLUTAMINASE\*\*\* FROM \*\*\*STREPTOVERTICILLIUM\*\*\*  
 AND ITS \*\*\*EXPRESSION\*\*\* IN \*\*\*STREPTOMYCES\*\*\*  
 -LIVIDANS

AUTHOR: WASHIZU K (Reprint); ANDO K; KOIKEDA S; HIROSE S; MATSUURA  
 A; TAKAGI H; MOTOKI M; TAKEUCHI K

CORPORATE SOURCE: AMANO PHARMACEUT CO LTD, TSUKUBA RES LABS, 22 MIYUKIGAOKA,  
 TSUKUBA, IBARAKI 305, JAPAN (Reprint); AMANO PHARMACEUT CO  
 LTD, CENT RES LABS, AICHI 481, JAPAN; AJINOMOTO CO INC,  
 FOOD RES & DEV LABS, KAWASAKI, KANAGAWA 210, JAPAN

COUNTRY OF AUTHOR: JAPAN

SOURCE: BIOSCIENCE BIOTECHNOLOGY AND BIOCHEMISTRY, (JAN 1994) Vol.  
58, No. 1, pp. 82-87.  
ISSN: 0916-8451.  
PUBLISHER: JAPAN SOC BIOSCI BIOTECHN AGROCHEM, JAPAN ACAD SOC CTR  
BLDG, 2-4-6 YAYOI BUNKYO-KU, TOKYO 113, JAPAN.  
DOCUMENT TYPE: Article; Journal  
FILE SEGMENT: LIFE; AGRI  
LANGUAGE: English  
REFERENCE COUNT: 32  
ENTRY DATE: Entered STN: 1994  
Last Updated on STN: 1994

\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

AB The microbial transglutaminase (TGase)-producing strain S-8112  
[Agric. Biol. Chem., 53, 2613-2617 (1989)] was identified as a variant  
of *Streptovorticillium mobaraense*. We amplified a partial gene fragment  
by polymerase chain reaction (PCR) using oligonucleotides synthesized from  
the amino acid sequence of TGase, and cloned the gene for TGase using the  
PCR amplified fragment as a probe. The gene encoded a precursor of TGase  
consisting of 406 amino acid residues, which comprised the prepro region  
of 75 amino acid residues and the mature region of 331 amino acid  
residues. We expressed the TGase gene in *Streptomyces lividans* under a  
tyrosinase promoter, and found an active and mature recombinant enzyme,  
indicating the processing of the gene product.

L6 ANSWER 36 OF 36 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1992:629103 CAPLUS

DOCUMENT NUMBER: 117:229103

TITLE: Cloning and expression of natural and synthetic genes  
for a transglutaminase

INVENTOR(S): Takagi, Hiroshi; Arafuka, Shino; Matsui, Hiroshi;  
Washizu, Kinya; Ando, Keiichi; Koikeda, Satoshi

PATENT ASSIGNEE(S): Amano Pharmaceutical Co., Ltd., Japan; Ajinomoto Co.,  
Inc.

SOURCE: Eur. Pat. Appl., 55 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 481504	A1	19920422	EP 1991-117813	19911018
EP 481504	B1	19960117		
R: DE, FR, GB				
JP 05199883	A2	19930810	JP 1991-267860	19911016
JP 3010589	B2	20000221		
US 5420025	A	19950530	US 1993-136993	19931018
PRIORITY APPLN. INFO.:			JP 1990-282566	A 19901019
			US 1991-777447	B1 19911018

AB Genes for a transglutaminase useful in food processing and modification of  
proteins are cloned and expressed. The gene for a transglutaminase of a  
*Streptovorticillium* was cloned from a BamHI partial digest bank in  
.lambda.EMBL3 using a probe prepd. by polymerase chain reaction  
amplification of part of the gene using amino acid sequence-derived  
oligonucleotide primers. Synthetic genes with codon usage optimized for  
different hosts were prepd. One such gene was expressed in *Escherichia*  
*coli* using the ompA-based expression cassette of pIN-III-ompA2. The gene  
was expressed upon induction with IPTG with most of the transglutaminase  
activity found in the periplasm. Expression of the gene in yeast and  
other Actinomycetes is also demonstrated.

=> d his

L1 QUE ((PROTEIN-GLUTAMINE ADJ GAMMA-GLUTAMYLTRANSFERASE#) OR (MIC

L2 32440 S L1

L3 5444 S (GENE# OR SEQUENCE# OR POLYNUCLEOTIDE# OR CLONE# OR RECOMBINA

L4 199 S (STREPTOMYCES OR STREPTOVORTICILLI?)(S)L3

L5 77 S EXPRESSI?(S)L4



L6 36 DUP REM L5 (41 DUPLICATES REMOVED)

=> log y